

## Section 1. Registration Information

### Source Identification

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Facility Name:	SEUSA Commerce City Refinery
Parent Company #1 Name:	Suncor Energy (USA), Inc.
Parent Company #2 Name:	Suncor Energy, Inc.

### Submission and Acceptance

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Submission Type:	Re-submission
Subsequent RMP Submission Reason:	5-year update (40 CFR 68.190(b)(1))
Description:	2007 Update_R2
Receipt Date:	15-May-2012
Postmark Date:	15-May-2012
Next Due Date:	15-May-2017
Completeness Check Date:	21-Apr-2015
Complete RMP:	Yes
De-Registration / Closed Reason:	
De-Registration / Closed Reason Other Text:	
De-Registered / Closed Date:	
De-Registered / Closed Effective Date:	
Certification Received:	Yes

### Facility Identification

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EPA Facility Identifier:	1000 0005 1971
Other EPA Systems Facility ID:	70022CNCNDN5801B

### Dun and Bradstreet Numbers (DUNS)

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Facility DUNS:	182105445
Parent Company #1 DUNS:	241804681
Parent Company #2 DUNS:	

### Facility Location Address

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Street 1:	5801 Brighton Blvd.
Street 2:	
City:	Commerce City
State:	COLORADO
ZIP:	80022
ZIP4:	3696
County:	ADAMS

### Facility Latitude and Longitude

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Latitude (decimal):	39.805556
Longitude (decimal):	-104.944444
Lat/Long Method:	Interpolation - Photo
Lat/Long Description:	Plant Entrance (General)
Horizontal Accuracy Measure:	25
Horizontal Reference Datum Name:	North American Datum of 1983
Source Map Scale Number:	24000

## Owner or Operator

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Operator Name:	Suncor Energy (USA) Inc.
Operator Phone:	(303) 286-5701

## Mailing Address

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Operator Street 1:	5801 Brighton Blvd.
Operator Street 2:	
Operator City:	Commerce City
Operator State:	COLORADO
Operator ZIP:	80022
Operator ZIP4:	3696
Operator Foreign State or Province:	
Operator Foreign ZIP:	
Operator Foreign Country:	

## Name and title of person or position responsible for Part 68 (RMP) Implementation

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RMP Name of Person:	Wes McNeil
RMP Title of Person or Position:	Environmental Manager
RMP E-mail Address:	WMcNeil@Suncor.com

## Emergency Contact

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Emergency Contact Name:	Brian Nelson
Emergency Contact Title:	EHS Manager
Emergency Contact Phone:	(303) 286-5711
Emergency Contact 24-Hour Phone:	(303) 453-9874
Emergency Contact Ext. or PIN:	
Emergency Contact E-mail Address:	bnelson@suncor.com

## Other Points of Contact

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Facility or Parent Company E-mail Address:	
Facility Public Contact Phone:	(303) 286-5775
Facility or Parent Company WWW Homepage Address:	www.suncor.com

## Local Emergency Planning Committee

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LEPC:	Adams County
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## Full Time Equivalent Employees

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Number of Full Time Employees (FTE) on Site:	420
FTE Claimed as CBI:	

## Covered By

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OSHA PSM :	Yes
EPCRA 302 :	Yes
CAA Title V:	Yes
Air Operating Permit ID:	96OPAD120

## OSHA Ranking

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OSHA Star or Merit Ranking:

## Last Safety Inspection

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Last Safety Inspection (By an External Agency) Date:	13-Mar-2012
Last Safety Inspection Performed By an External Agency:	OSHA

## Predictive Filing

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Did this RMP involve predictive filing?:

## Preparer Information

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Preparer Name:	John K. Schaefer
Preparer Phone:	(865) 671-5854
Preparer Street 1:	ABS Consulting
Preparer Street 2:	10301 Technology Drive
Preparer City:	Knoxville
Preparer State:	TENNESSEE
Preparer ZIP:	37932
Preparer ZIP4:	3392
Preparer Foreign State:	
Preparer Foreign Country:	
Preparer Foreign ZIP:	

## Confidential Business Information (CBI)

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CBI Claimed:  
Substantiation Provided:  
Unsanitized RMP Provided:

## Reportable Accidents

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Reportable Accidents:	See Section 6. Accident History below to determine if there were any accidents reported for this RMP.
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## Process Chemicals

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Process ID:	1000033777
Description:	Petroleum Refinery
Process Chemical ID:	1000040841
Program Level:	Program Level 3 process
Chemical Name:	Hydrogen sulfide
CAS Number:	7783-06-4
Quantity (lbs):	14000
CBI Claimed:	
Flammable/Toxic:	Toxic

Process ID:	1000033777
Description:	Petroleum Refinery
Process Chemical ID:	1000040840
Program Level:	Program Level 3 process
Chemical Name:	Flammable Mixture
CAS Number:	00-11-11
Quantity (lbs):	13000000
CBI Claimed:	
Flammable/Toxic:	Flammable

### Flammable Mixture Chemical Components

Flammable Mixture Chemical ID:	1000033756
Chemical Name:	Ethyl mercaptan [Ethanethiol]
CAS Number:	75-08-1
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033749
Chemical Name:	Isobutane [Propane, 2-methyl]
CAS Number:	75-28-5
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033739
Chemical Name:	2-Butene-cis
CAS Number:	590-18-1
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033752
Chemical Name:	Pentane
CAS Number:	109-66-0
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033740
Chemical Name:	2-Butene-trans [2-Butene, (E)]
CAS Number:	624-64-6
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033750
Chemical Name:	Isopentane [Butane, 2-methyl-]
CAS Number:	78-78-4
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033746
Chemical Name:	Ethane
CAS Number:	74-84-0
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033744
Chemical Name:	Butane
CAS Number:	106-97-8
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033738
Chemical Name:	1-Butene
CAS Number:	106-98-9
Flammable/Toxic:	Flammable

Flammable Mixture Chemical ID:	1000033754
Chemical Name:	Propylene [1-Propene]
CAS Number:	115-07-1
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033748
Chemical Name:	Hydrogen
CAS Number:	1333-74-0
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033751
Chemical Name:	Methane
CAS Number:	74-82-8
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033753
Chemical Name:	Propane
CAS Number:	74-98-6
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033755
Chemical Name:	Carbon oxysulfide [Carbon oxide sulfide (COS)]
CAS Number:	463-58-1
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033741
Chemical Name:	2-Methylpropene [1-Propene, 2-methyl-]
CAS Number:	115-11-7
Flammable/Toxic:	Flammable
Flammable Mixture Chemical ID:	1000033747
Chemical Name:	Ethylene [Ethene]
CAS Number:	74-85-1
Flammable/Toxic:	Flammable

## Process NAICS

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Process ID:	1000033777
Process NAICS ID:	1000034038
Program Level:	Program Level 3 process
NAICS Code:	32411
NAICS Description:	Petroleum Refineries

## Section 6. Accident History

No records found.

## Section 7. Program Level 3

### Description

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This Risk Management Plan re-submission for the SEUSA Commerce City Refinery complies with the requirements of the EPA Risk Management Program (40 CFR 68) as well as the OSHA Process Safety Management Program (29 CFR 1910.119).

This submission treats the refinery as a single process. The risk management and process safety management programs for this refining process are applied uniformly to each production unit in the process. This approach results in one refinery-wide accidental release prevention program.

Information reported in the prevention program section is a summary of information from the individual production units which make up the single refinery process. The most recent date or information for any production unit has been provided for each required reporting element of the prevention program.

As an example, the refinery process hazard analysis (PHA) was originally completed on a production unit by production unit basis. It is revalidated at least every 5 years using the same approach. This method allows management to use the appropriate process hazard analysis methodology based on the complexity of the production unit being evaluated. For reporting purposes, we have included the last date that a production unit PHA revalidation was performed to complete the PHA revalidation cycle for the entire refinery process.

Likewise, the process controls, mitigation systems, monitoring systems, and detection systems are reported for the production units in the refinery process and are typical of those found in a modern oil refinery.

For other elements such as training and maintenance inspections, the last date the activity was completed for one of the production units composing the refinery process is provided. These activities are scheduled for all production units that combine to form the refinery process.

Additional information covering the SEUSA Commerce City Refinery prevention program is provided in the executive summary.

### Program Level 3 Prevention Program Chemicals

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Prevention Program Chemical ID:	1000035580
Chemical Name:	Hydrogen sulfide
Flammable/Toxic:	Toxic
CAS Number:	7783-06-4
Process ID:	1000033777
Description:	Petroleum Refinery
Prevention Program Level 3 ID:	1000029503
NAICS Code:	32411
Prevention Program Chemical ID:	1000035166
Chemical Name:	Flammable Mixture
Flammable/Toxic:	Flammable
CAS Number:	00-11-11
Process ID:	1000033777
Description:	Petroleum Refinery
Prevention Program Level 3 ID:	1000029503
NAICS Code:	32411

## Safety Information

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Safety Review Date (The date on which the safety information was last reviewed or revised): 08-Mar-2012

## Process Hazard Analysis (PHA)

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PHA Completion Date (Date of last PHA or PHA update): 01-Aug-2011

## The Technique Used

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What If:  
Checklist: Yes  
What If/Checklist:  
HAZOP: Yes  
Failure Mode and Effects Analysis:  
Fault Tree Analysis:  
Other Technique Used:  
PHA Change Completion Date (The expected or actual date of completion of all changes resulting from last PHA or PHA update): 31-Mar-2012

## Major Hazards Identified

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Toxic Release: Yes  
Fire: Yes  
Explosion: Yes  
Runaway Reaction: Yes  
Polymerization: Yes  
Overpressurization: Yes  
Corrosion: Yes  
Overfilling: Yes  
Contamination: Yes  
Equipment Failure: Yes  
Loss of Cooling, Heating, Electricity, Instrument Air: Yes  
Earthquake:  
Floods (Flood Plain):  
Tornado:  
Hurricanes:  
Other Major Hazard Identified:

## Process Controls in Use

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Vents: Yes  
Relief Valves: Yes  
Check Valves: Yes  
Scrubbers: Yes  
Flares: Yes  
Manual Shutoffs: Yes  
Automatic Shutoffs: Yes  
Interlocks: Yes  
Alarms and Procedures: Yes  
Keyed Bypass:  
Emergency Air Supply: Yes



Emergency Power:	Yes
Backup Pump:	Yes
Grounding Equipment:	Yes
Inhibitor Addition:	Yes
Rupture Disks:	Yes
Excess Flow Device:	Yes
Quench System:	Yes
Purge System:	Yes
None:	
Other Process Control in Use:	

### Mitigation Systems in Use

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Sprinkler System:	Yes
Dikes:	Yes
Fire Walls:	Yes
Blast Walls:	
Deluge System:	Yes
Water Curtain:	
Enclosure:	
Neutralization:	
None:	
Other Mitigation System in Use:	

### Monitoring/Detection Systems in Use

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Process Area Detectors:	Yes
Perimeter Monitors:	Yes
None:	
Other Monitoring/Detection System in Use:	

### Changes Since Last PHA Update

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Reduction in Chemical Inventory:	
Increase in Chemical Inventory:	
Change Process Parameters:	
Installation of Process Controls:	Yes
Installation of Process Detection Systems:	
Installation of Perimeter Monitoring Systems:	
Installation of Mitigation Systems:	
None Recommended:	
None:	
Other Changes Since Last PHA or PHA Update:	

### Review of Operating Procedures

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Operating Procedures Revision Date (The date of the most recent review or revision of operating procedures):	14-Mar-2012
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### Training

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Training Revision Date (The date of the most recent review or revision of training programs):	25-Sep-2008
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## The Type of Training Provided

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Classroom:	Yes
On the Job:	Yes
Other Training:	

## The Type of Competency Testing Used

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Written Tests:	Yes
Oral Tests:	Yes
Demonstration:	Yes
Observation:	Yes
Other Type of Competency Testing Used:	

## Maintenance

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Maintenance Procedures Revision Date (The date of the most recent review or revision of maintenance procedures): 12-Mar-2012

Equipment Inspection Date (The date of the most recent equipment inspection or test): 15-Feb-2012

Equipment Tested (Equipment most recently inspected or tested): Tar Stripper OVHD vs. Crude

## Management of Change

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Change Management Date (The date of the most recent change that triggered management of change procedures): 16-Mar-2012

Change Management Revision Date (The date of the most recent review or revision of management of change procedures): 20-Oct-2011

## Pre-Startup Review

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Pre-Startup Review Date (The date of the most recent pre-startup review): 16-Mar-2012

## Compliance Audits

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Compliance Audit Date (The date of the most recent compliance audit): 01-Jun-2010

Compliance Audit Change Completion Date (Expected or actual date of completion of all changes resulting from the compliance audit): 15-Apr-2016

## Incident Investigation

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Incident Investigation Date (The date of the most recent incident investigation (if any)): 15-Mar-2012

Incident Investigation Change Date (The expected or actual date of completion of all changes resulting from the investigation): 15-Apr-2013

## Employee Participation Plans

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Participation Plan Revision Date (The date of the most recent review or revision of employee participation plans): 19-Nov-2007

## Hot Work Permit Procedures

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Hot Work permit Review Date (The date of the most recent review or revision of hot work permit procedures): 09-Nov-2011

## Contractor Safety Procedures

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Contractor Safety Procedures Review Date (The date of the most recent review or revision of contractor safety procedures): 07-Feb-2012

Contractor Safety Performance Evaluation Date (The date of the most recent review or revision of contractor safety performance): 21-Jan-2012

## Confidential Business Information

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CBI Claimed:

## Section 8. Program Level 2

No records found.

## Section 9. Emergency Response

### Written Emergency Response (ER) Plan

Community Plan (Is facility included in written community emergency response plan?): Yes

Facility Plan (Does facility have its own written emergency response plan?): Yes

Response Actions (Does ER plan include specific actions to be taken in response to accidental releases of regulated substance(s)?): Yes

Public Information (Does ER plan include procedures for informing the public and local agencies responding to accidental release?): Yes

Healthcare (Does facility's ER plan include information on emergency health care?): Yes

### Emergency Response Review

Review Date (Date of most recent review or update of facility's ER plan): 16-Aug-2011

### Emergency Response Training

Training Date (Date of most recent review or update of facility's employees): 15-Mar-2012

### Local Agency

Agency Name (Name of local agency with which the facility ER plan or response activities are coordinated): South Adams County Fire District

Agency Phone Number (Phone number of local agency with which the facility ER plan or response activities are coordinated): (303) 288-0835

### Subject to

OSHA Regulations at 29 CFR 1910.38: Yes

OSHA Regulations at 29 CFR 1910.120: Yes

Clean Water Regulations at 40 CFR 112: Yes

RCRA Regulations at CFR 264, 265, and 279.52: Yes

OPA 90 Regulations at 40 CFR 112, 33 CFR 154, 49 CFR 194, or 30 CFR 254: Yes

State EPCRA Rules or Laws: Yes

Other (Specify):

## Executive Summary

This executive summary for the Suncor Energy USA, Inc. (SEUSA) Commerce City Refinery includes a brief description of the following items:

- The accidental release prevention and emergency response policies
- A description of this stationary source and the regulated substances handled
- The five year accident history
- The general accidental release prevention program and chemical specific prevention steps
- The emergency response program
- Planned changes to improve safety

This risk management plan re-submission for the SEUSA Commerce City Refinery complies with the EPA Risk Management Program (RMP) 40 CFR 68 as well as the OSHA Process Safety Management Program (PSM) 29 CFR 1910.119. The risk management and process safety management programs for this refining process are applied uniformly to each production unit in the process. This results in one refinery-wide accidental release prevention program.

### THE ACCIDENTAL RELEASE PREVENTION AND EMERGENCY RESPONSE POLICIES

Two goals for the SEUSA Commerce City Refinery include a 'Journey to Zero' incident mindset, and that we are a welcome business in the community. Preventing accidental releases is an essential component to achieve these goals. The SEUSA Commerce City Refinery uses a variety of activities, as described below in the general accidental release prevention program and chemical specific prevention steps section, to reduce the chances of an accidental release.

An emergency response team of volunteer employees receives annual training in emergency response techniques. This training includes fire fighting techniques. The SEUSA Commerce City Refinery's goal is to be able to respond effectively to any emergencies within the refinery. The emergency response team also trains with other local emergency responders so that both groups are prepared to respond if an event exceeds the refinery's capabilities.

### A DESCRIPTION OF THIS STATIONARY SOURCE AND THE REGULATED SUBSTANCES HANDLED

Suncor Energy Inc. is a Canadian company that specializes in mining and upgrading tar sands in the northern area of Alberta, Canada. This submission treats the SEUSA Commerce City Refinery as a single stationary source process for the production of petroleum fuels. The refinery produces multiple grades of gasoline, jet fuel, diesel fuel, propane, butane, asphalt components, and sulfur. The refinery produces several regulated flammable substances as products. In addition, some of these materials are used in the various production units. The refinery also has some RMP listed toxic substances, with Hydrogen Sulfide being the only material to exceed threshold quantity specified in the regulation. Practices are in place to protect employees, the community, and the environment from the flammables and the toxics.

### THE FIVE YEAR ACCIDENT HISTORY

The RMP requires the SEUSA Commerce City Refinery to report all accidents that had specific on-site, community, or environmental impacts within the past 5 years. There have been no accidents that meet the reporting requirements for this resubmittal. This has been determined based upon the results of interviews with Suncor employees and a review of safety and environmental records covering the five year period prior to the submission date of the RMP.

### THE GENERAL ACCIDENTAL RELEASE PREVENTION PROGRAM AND CHEMICAL SPECIFIC PREVENTION STEPS

The following is a summary of the general accidental release prevention program elements in place at the SEUSA Commerce City Refinery and describes the systems that have been implemented to help prevent accidents.

#### Management Commitment

SEUSA's Commerce City Refinery management recognizes the value of active, widespread employee participation in the effective application of process safety management (PSM) and accident prevention for the risk management program (RMP).

Effective process safety management depends upon the knowledge and contribution of every employee involved with the operation and maintenance of the process. Refinery employees have been and will continue to be involved with implementing process safety management and accidental release prevention.

The refinery management team members understand their role, which includes the commitment of resources to implement site PSM and RMP policies and procedures and to sustain and continually improve safety.

#### Employee Participation

There is a written employee participation plan that describes how employees participate in PSM and the RMP accidental release prevention program development and implementation. It also describes how employees have access to the information they need to do their jobs safely. Employees participate in updating and compiling procedures, conducting inspections and tests on equipment, acting as members of process hazard analysis (PHA) teams, and play active roles in management of change, pre-start-up-safety reviews, contractor evaluations, compliance audits, incident investigations, and sequential safety meetings. This intensive and wide spread involvement in by all employees is considered essential to the effectiveness and sustainability of the accident prevention efforts.

The refinery supports a Joint Health and Safety Committee and Process Safety Employee Committee to involve employees at various levels of the organization in both personnel safety and process safety issues. It includes union represented employees, refinery leadership, and other department personnel. These committees address a variety of process and personnel safety issues, and provides employee consultation on the development and implementation of all elements of PSM and the accident prevention program requirements of RMP.

#### Process Safety Information

As part of compliance with PSM and RMP, the refinery maintains current information on the chemicals, technology, and equipment. Material Safety Data Sheets (MSDS) provide the information about the chemicals in the process. This chemical- specific information includes exposure hazards and emergency response/exposure treatment considerations. This information is supplemented by documents that specifically address known corrosion concerns and any known hazards associated with the inadvertent mixing of chemicals.

For the technology and equipment of the process, written information is collected and validated by a variety of employees. The technology information includes the process chemistry, intended inventories, safe upper and lower limits for such items as temperatures, pressures, flows or compositions, and the consequences of deviation from the limits. The refinery maintains the process within these limits using process controls and monitoring instruments, highly trained personnel, procedures, and protective instrument systems, such as automated shutdown systems.

The refinery also maintains numerous technical documents that provide information about the design and construction of process equipment. This information includes materials of construction, design pressure and temperature ratings, electrical rating of equipment, and design codes and standards. This information, in combination with written procedures and trained personnel, provides a basis for establishing inspection and maintenance activities, as well as for evaluating proposed process and facility changes to help ensure that safety features in the process are not compromised.

#### Process Hazard Analysis

The process hazards analysis is a systematic approach to help ensure that hazards associated with the various production units in the process are identified, evaluated, and controlled. The SEUSA Commerce City Refinery uses recognized methodologies to conduct the analysis, including the hazard and operability (HAZOP) analysis technique and a what-if/checklist methodology. Process hazard analyses have been conducted on the production units as part of the PSM program and the process hazard analysis for the refinery is updated and revalidated at least once every five years. Each PHA session is performed by a team with expertise in engineering and process operations for the production unit being evaluated. This team identifies and evaluates hazards of the process for that production unit as well as previous incidents and accident prevention and mitigation measures. The team then makes suggestions for additional prevention or mitigation measures when the team believes such measures are necessary.

The PHA team's findings and recommendations are reviewed by refinery management and an appropriate response is determined, documented, and an action plan developed. Progress on the action plan is tracked until complete. The final resolution of each finding is documented and retained. Affected refinery employees are advised of the analyses in advance for the opportunity to provide input, and employees who may be affected by the recommendations or actions are advised of the outcome.

#### Operating Procedures

For each production unit, the SEUSA Commerce City Refinery has implemented and maintains written operating procedures that address various modes of process operations, such as (1) startup, (2) normal operations, (3) temporary operations, (4) emergency shutdown, (5) normal shutdown, and (6) initial startup of a new process. These procedures are used by experienced operators and provide a basis for consistent training of new operators. These procedures are routinely reviewed through usage or training, and there is a separate process to review and annually certify that the procedures are current and accurate. The written operating procedures are readily available to operators in the control rooms and for other personnel to use as necessary to safely perform their job tasks.

#### Training for Operators

To complement the written procedures for process operations, there is a training program for all employees involved in operating a process. New employees receive basic training in refinery operations, including classroom work and field observations, if they are not already familiar with such operations. After successfully completing this training, a new operator is paired with an experienced operator to learn process-specific duties and tasks. After operators demonstrate through testing or skills demonstration that they have adequate knowledge to perform assigned duties and tasks in a safe manner on their own, they can work independently. Operators are also trained before operating a newly assigned process.

Affected operators are informed of and trained on changes to the procedures as required. All operators periodically receive refresher training on the operating procedures to ensure that their skills and knowledge are maintained and to help ensure they understand and follow the current procedures. This refresher training is conducted at least every 3 years. All of this training is documented for each operator, including the means used to verify that the operator understood the training.

#### Contractors

Contractors work at SEUSA's Commerce City Refinery to supplement the employee workforce. For the contractors that work near or in the process, there is a comprehensive program to evaluate the contractor's safety performance and programs prior to selecting the contractors. The refinery has a program to inform the contractors of the site-specific information, including the hazards of the process, the emergency response plan, and applicable safety procedures. This helps ensure that these contractors perform their work in a safe manner, are aware of the hazards, understand what they should do in the event of an emergency, and understand and follow the refinery's safety rules. The contractors are expected to inform refinery personnel of any hazards that they find during their work. Refinery personnel periodically evaluate contractor performance to ensure that contractors are fulfilling their safety obligations.

#### Management of Change and Pre-startup Safety Reviews

The SEUSA Commerce City Refinery has a comprehensive system to manage changes to the process equipment, chemicals, technology (including process-operating conditions), and procedures. The management of change system includes written procedures that provide for the changes to be reviewed and authorized before being implemented. It includes various evaluation questions that help assess the impact of the change. The proposed change is reviewed by employees to understand the technical basis of the change and any possible impact on safety and health. Once the change is authorized, any affected process safety information (for example, chemical hazard information, process operating limits, equipment information, or procedures) is updated to incorporate these changes. In addition, operating and maintenance personnel are provided any necessary information or training on the change.

If a new process is constructed or if there is a change that requires a change in the process safety information, a review is performed prior to start-up. The purpose of this pre-startup safety review (PSSR) is to ensure that safety features, procedures,



personnel, and the equipment are appropriately prepared for startup prior to placing the equipment into service. There are checklists to assist the employees' verification of all aspects of readiness, including field verification of the construction and verification that accident prevention program requirements are properly implemented. This review provides one additional check to make sure construction is in accordance with the design specifications and that supporting systems are operationally ready.

### Mechanical Integrity

Mechanical integrity is the name given to the group of requirements to properly maintain and repair equipment in the refinery. SEUSA's Commerce City Refinery has a comprehensive system to identify equipment to include in the program, written and implemented maintenance procedures with training on the procedures, inspections and tests, correcting identified deficiencies, and quality assurance for new and replacement equipment and parts. In combination, these practices and procedures help ensure pressure vessels, piping systems, relief and vent systems, controls, pumps and compressors, and emergency shutdown systems are maintained in a safe operating condition.

The refinery's mechanical integrity program provides for training for maintenance personnel on an overview of the production units where they work, safety and health hazards, applicable maintenance procedures, the emergency response plan, and applicable safe work practices and procedures to help ensure that they can perform their job in a safe manner. The written procedures help ensure that work is performed in a safe, consistent manner and provide a basis for training.

Inspections and test procedures follow recognized and generally accepted good engineering practices. The inspections and tests are performed by properly qualified and trained employees or contractors. The inspections and tests are done at a certain frequency to help ensure that equipment functions as intended, and to verify that equipment is within acceptable limits (such as adequate wall thickness for pressure vessels). If a deficiency is identified, employees will correct the deficiency before placing the equipment back into service (if possible), or take the necessary actions to continue to operate safely until repairs can be made.

Another integral part of the mechanical integrity program is quality assurance for the purchase and use of new, spare or replacement parts or equipment. Along with the management of change and pre-startup safety review processes, this helps ensure that new or replacement equipment is installed correctly and safe for the conditions in the process.

### Safe Work Practices/Hot Work

SEUSA's Commerce City Refinery has numerous safe work practice procedures to help ensure the safety of employees, contractors and visitors to the refinery. These include the safe work practices and hot work permit requirements listed in the PSM and RMP regulations. Examples of these include (1) control of the access of personnel to the facility and the process, (2) a procedure to ensure isolation/removal of energy sources for equipment undergoing maintenance, (3) a procedure for safely opening process piping or equipment, (4) a permit and procedure to control spark-producing activities (for example, hot work, welding, grinding), and (5) a permit and procedure to ensure that adequate precautions are in place before entry into a confined space. These procedures (and others), are written, implemented through training of affected personnel, and routinely reviewed and audited through Joint Health & Safety Committee programs involving both employees and contractors.

### Incident Investigation

An incident investigation process is in place at SEUSA's Commerce City Refinery. The Environmental Health and Safety department oversees the majority of incident investigations at the refinery. This includes reviewing incidents that may need to be investigated to comply with the requirements of PSM and RMP. This helps ensure that all incidents that resulted in, or reasonably could have resulted in, a fire, explosion, toxic gas release, major property damage, environmental loss, or personal injury are promptly investigated. The goal of each investigation is to determine the facts and develop corrective actions to prevent a recurrence of the incident or a similar incident. The investigations are done by a team which includes salaried employees and union represented employees and, if the incident involved the work of the contractor, a contractor representative. The team produces a written report with its findings and recommendations to prevent a recurrence and forwards these results to refinery management for resolution. A corrective action plan is developed, documented, and tracked until complete. The investigation team's report is also provided to all employees and the contractors regularly on site. Incident investigation reports are retained for at least 5 years so that the reports can be reviewed during the next process hazard analysis update/revalidation.

## Compliance Audits

The RMP regulations require an audit of the accidental release prevention program at least once every 3 years. To comply with this requirement and help ensure that the RMP accidental release prevention program is implemented, SEUSA's Commerce City Refinery periodically conducts audits of the required procedures, practices, and documentation. Union represented and management employees participate in the audit process. Audit team members may be SEUSA Commerce City Refinery employees, Suncor Energy, Inc. employees, or come from an independent third party auditing resource. The audit team is expected to document any findings that refinery management will review to develop a corrective action plan. Corrective actions taken in response to the audit team's findings will be tracked until they are complete. The final resolution of each finding is documented and the two most recent audit reports are retained.

## CHEMICAL SPECIFIC PREVENTION STEPS

The production units at the SEUSA Commerce City Refinery are managed to help ensure continued safe operation. The accidental release prevention program is applied to all production units in the process. Collectively, these prevention program activities help prevent potential accidents and releases. In addition to the activities already described, the refinery has several process control and safety mitigation systems in place to help contain or control a release, quickly detect a release, and reduce the consequences of (mitigate) a release. The following types of safety features are used in various production units:

### Release Detection

Hydrocarbon detectors with alarms.

There are also detectors for some of the listed toxics present on site such as hydrogen sulfide. These materials are managed and monitored to help ensure employee safety.

### Release Containment/Control

Process relief valves that discharge to a flare to safely capture and incinerate releases

Valves to permit isolation of all or part of the process (manually operated or automated)

Automatic shutdown systems for specific process parameters (such as high level or high temperature)

Vessels to permit partial removal of the inventory in the event of a release (a 'dump tank')

Curbing or diking to contain liquid releases

Redundant equipment and instrumentation (This includes such things as uninterruptible power supply for process control systems and backup firewater pumping capability.)

Atmospheric relief devices to allow vessels to vent rather than rupture.

### Release Mitigation

Fire suppression and extinguishing systems throughout the refinery

Deluge systems for specific equipment

Trained emergency response personnel and operators trained in specific emergency procedures  
Personal protective equipment (protective clothing, self-contained breathing apparatus)  
Blast-resistant buildings to help protect personnel and control systems

## THE EMERGENCY RESPONSE PROGRAM

The SEUSA Commerce City Refinery has a written emergency response plan and a program that is in place to protect worker and public safety as well as the environment. The program addresses all aspects of emergency response, including proper first-aid and medical treatment for exposures, evacuation plans and accounting for personnel after an evacuation, notification of local emergency response agencies if a release occurs, and post incident cleanup and decontamination requirements. The program includes the refinery's plans for responding to the possibility of a fire or explosion if a flammable substance is accidentally released. In addition, the refinery has procedures that address the use, maintenance, inspection, and testing of emergency response equipment, like the refinery's own fire trucks and the system to deliver water or foam for fire fighting. Changes to the refinery that might require changes to the emergency response program are identified through the management of change system.

Employees receive training in the emergency response procedures as necessary to perform their specific emergency response duties. They are informed or trained in any changes that affect their duties. For example, all employees are trained in the emergency alarm and evacuation procedures, and many employees are trained in the use of portable fire extinguishers. There is

also a team of highly trained employees who are volunteers to make up the refinery's emergency response team, which includes a fire brigade and rescue team. This group of employees is trained to fight fires and respond to other emergencies in the refinery.

The emergency response program for the refinery is coordinated with the South Adams County Fire Protection District and the Adams County Local Emergency Planning Committee (LEPC). The LEPC coordination includes periodic meetings of the committee, which includes local emergency response officials, local government officials, and industry representatives.

#### PLANNED CHANGES TO IMPROVE SAFETY

On an ongoing basis, the techniques most used to generate ideas to improve safety are the three-year compliance audits, process hazards analyses, and learning from incident investigations and real or staged emergency responses. For example, these techniques may identify needed improvements in equipment or procedures. The techniques used can identify needed changes before an accident or help identify needed changes to prevent the possibility of more serious accidents.

In addition to the above, Suncor has also recently developed its own Process Safety Standards for every element of PSM and RMP. The SEUSA Commerce City Refinery has undertaken a multi-year improvement effort to improve its process safety practices and procedures to meet these new internal standards.